In The Specification

Replace paragraphs 34, 70, 125 and 126 with the following corresponding paragraphs:

[00034] The following description of the preferred embodiments are merely exemplary in nature and are in no way intended to limit the invention, its application, or uses. To aid in unde[[r]]standing the present invention the following defined terms as used herein are provided below:

[00070] "Amplification" is a special case of nucleic acid replication involving template specificity. It is to be contrasted with non-specific template replication (*i.e.*, replication that is template-dependent but not dependent on a specific template). Template specificity is distinguished here from fidelity of replication (*i.e.*, synthesis of the proper polynucleotide sequence) and nucleotide (ribo- or deoxyribo-) specificity. Template specificity is frequently described in terms of "target" specificity. Target sequences are "targets" in the sense that they are sought to be sorted out from other nucleic acid. Amplification techniques have been designed primarily for this sorting out. Template specificity is achieved in most amplification techniques by the choice of enzyme. Amplification enzymes are enzymes that, under conditions they are used, will process only specific sequences of nucleic acid in a heterogeneous mixture of nucleic acid. For example, in the case of Qβ replicase, MDV-1 RNA is the specific template for the replicase (Kacian *et al.*, Proc. Natl. Acad. Sci. USA, 69:3038 [1972]). Other nucleic acid will not be replicated by this amplification enzyme. Similarly, in the case

of T7 RNA polymerase, this amplification enzyme has a stringent specificity for its own promoters (Chamberlin *et al.*, Nature, 228:227 [1970]). In the case of T4 DNA ligase, the enzyme will not ligate the two oligonucleotides or polynucleotides, where there is a mismatch between the oligonucleotide or polynucleotide substrate and the template at the ligation junction (Wu and Wallace, Genomics, 4:560 [1989]). Finally, *Taq* and *Pfu* polymerases, by virtue of their ability to function at high temperature, are found to display high specificity for the sequences bounded and thus defined by the primers; the high temperature results in thermodynamic conditions that favor primer hybridization with the target sequences and not hybridization with non-target sequences (Sambrook et al, Molecular Cloning: A Laboratory Manual, 3rd Ed., Cold Spring Harbor Laboratory Press, NY, pp 8.4-8.11 (2001)). ~~H.A. Erlich (ed.), *PCR Technology*, Stockton Press [1989]).~~

[000125] The transient nature of the changes in transcript levels suggested the abrupt lowering of temperature might have resulted in a short-lived "shock" response followed by an adjustment to the new environmental conditions. Indeed, low temperature may cause a decrease in the turnover rate of photosystem (PS) II components causing an increase in PS II excitation pressure or "excess excitation energy" and the generation of damaging ROS including hydrogen peroxide (see Huner et al, Trends Plant Sci. 3, 224-230 (1998)). An indication that such a response occurred in experiments relating to the present invention was that among the transiently expressed genes were three known or putative glutathione S-transferases that are known to be involved in the detoxification of toxic metabolites arising from oxidative damage caused by

excess excitation energy (see Marrs, Annu. Rev. Plant Physiol. Plant Mol. Biol. 47, 127-158 (1996)) and nine known or putative peroxidases that potentially also contribute to detoxification of hydrogen peroxide (Østergaard et al., FEBS Lett. 433, 98-102 (1998)). Moreover, seven genes recently shown to be induced by hydrogen peroxide in Arabidopsis (Desikan et al., Plant Physiol. 127, 159-172 (2001)) were among the genes found to be transiently induced by cold. These genes encoded a blue copper-binding protein, adenosine-5 -phosphosulfate reductase, a putative zinc-finger transcription factor (At5g04340), AtERF-4, CCA1, a putative nematode resistance protein and a protein of unknown function (At2g36220).

[000126] The production of ethylene has also been associated with cold-stress (Ciardi et al., Plant Physiol. 101, 333-340 (1997); Morgan and Drew, Physiologia Plantarum~~Plant Physiol.~~ 100, 620-630 (1997); Yu et al., Plant Physiol. 126, 1232-1240 (2001)). In this regard, it was notable that genes involved in ethylene signaling were among those rapidly induced with low temperature (Fig. 9 and Table 2). Within the first hour of transfer, transcripts accumulated for ACC synthase (*AtACS-6*), which catalyzes a limiting step in ethylene synthesis, and two ethylene-responsive transcription factors, *AtERF-4* and *AtERF-5* (Fujimoto et al., Plant Cell 12, 393-404 (2000)). However, two other known ethylene-inducible genes, *AtERF-1* and basic chitinase were not found to be induced (these genes are represented by probe sets on the GeneChip). This, and the fact that cold-induction of *AtERF-4* and *AtERF-5* can occur independent of ethylene (Fujimoto et al., 2000) may lead to the conclusion that although rapid transfer of plants to low temperature

resulted in a burst of transcript accumulation for ACC synthase, little, if any, ethylene was actually produced.

Respectfully submitted,

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